

May 11, 2012

**RECEIVED**

**MAY 16 2012**

**SUPERFUND DIVISION**


Mr. Jason Gunter  
Remedial Project Manager  
U.S. Environmental Protection Agency  
Region 7 - Superfund Branch  
901 North 5<sup>th</sup> Street  
Kansas City, KS 66101

**Re: National Mine Tailings Site Progress Report**

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No.CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period March 1, 2012 through March 31, 2012 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0600.

Sincerely,

  
Ty L. Morris, P.E., R.G.  
Vice President

TLM/jms

Enclosure

c: Mark Nations – TDRC  
Matt Wohl – TDRC (electronic only)  
Kevin Lombardozzi – NL Industries, Inc.  
John Kennedy – City of Park Hills  
Norm Lucas – Park Hills – Leadington Chamber of Commerce  
Kathy Rangen – MDNR  
Tim Skoglund – Barr Engineering

40389786



Superfund

**National Mine Tailings Site**  
Park Hills, Missouri  
**Removal Action - Monthly Progress Report**  
Period: March 1, 2012 – March 31, 2012

**RECEIVED**

**MAY 16 2012**

**SUPERFUND DIVISION**

**1. Actions Performed and Problems Encountered This Period:**

- a. Work at the site continued on the task of removing excess slope fill from the main chat pile. This work focused on removing excess slope fill to construct this area to the final subgrade elevations shown on the Construction Drawings. As of the end of the period, this area had been surveyed and verified to have been constructed within the grade tolerances.

Following the completion of the survey activities, work on this area began on the task of placing rock on the top of the chat pile. This work focused on placing the crushed rock filter over the area. As of the end of the period, work on this task had covered approximately 75 percent of the top of the chat pile with crushed rock filter.

- b. Work at the site also continued on the task of modifying the southern slope of the stormwater detention basin in the West Area. This work focused on the task of installing the extension to the storm sewer outlet, finishing construction of the berm, and rocking the portions of the berm that had been verified to have been constructed to the final subgrade elevations. As of the end of the period, a majority of the southern slope had been rebuilt, the extension had been installed, and work had begun on the task of rocking the portions of this area that had been verified to have been constructed to the final subgrade elevations.
- c. Work at the site also continued on the task of designing the portion of the Piral Glass property located west of the Lee Mechanical office building. This work focused on developing a design that will increase the capacity of the stormwater detention of the area without requiring any material to be removed from the area. As of the end of the period, work on this task was complete.

Following the completion of the design activities on the portion of the Piral Glass property located west of the Lee Mechanical office building, work began on the task of constructing the area to the final subgrade elevations. This task focused on regrading the area to flatten the existing slopes and better define the drainage channel through this area. As of the end of the period, work on this task is approximately 50 percent completed.

- d. Work at the site continued on the task of meeting with the landowners who may be affected by the removal action activities. This included meeting with landowners who signed an access agreement prior to April 1, 2008, which needed to be amended, as well as landowners who have not signed agreements. As of the end of the period, the following had been accomplished:

Landowners that own property within the site boundary

Total number of landowners = 22

Landowners who signed an access agreement prior to 04/01/08 = 18

Landowners who signed an access agreement after 04/01/08 = 1

Landowners who are reviewing the access agreement = 3

Landowners who have refused to sign the access agreement = 0

Landowners who still need to be met with concerning the access agreement = 0

Total number of landowners who need to sign the amendment letter = 18

Landowners who have signed the amendment letter = 16

Landowners who are reviewing the amendment letter = 1

Landowners who refused to sign the amendment letter = 0

Landowners who still need to be met with concerning the amendment letter = 1

(Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

Landowners that own property immediately adjacent to the site boundary

Total number of landowners = 27

Landowners who signed an access agreement prior to 04/01/08 = 11

Landowners who signed an access agreement after 04/01/08 = 6

Landowners who are reviewing the access agreement = 4

Landowners who have refused to sign the access agreement = 3  
Landowners who still need to be met with concerning the access agreement = 3  
  
Total number of landowners who need to sign the amendment letter = 11  
Landowners who have signed the amendment letter = 11  
Landowners who are reviewing the amendment letter = 0  
Landowners who refused to sign the amendment letter = 0  
Landowners who still need to be met with concerning the amendment letter = 0

(It is not anticipated that it will be a challenge to work around the property owned by the three landowners that refused to sign the access agreement based on location of the property in relationship to the work that needs to be completed. Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

**2. Analytical Data and Results Received This Period:**

- a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.
- b. During this period, the Ambient Air Monitoring Report for January 2012 was received. Any issues identified in these reports are discussed below. A copy of this document has been sent to your attention.

The January 2012 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 1/2/12 due to the holiday.

**3. Developments Anticipated and Work Scheduled for Next Period:**

- a. Continue rocking the portion of the Thin Tailings Area between the haul road and the sewer line from Northing Coordinate N736750 to Northing Coordinate N739000.
- b. Continue rocking the top of the main chat pile.
- c. Finish constructing the south slope of the stormwater detention pond in the West Area.
- d. Finish rocking the south slope of the stormwater detention pond in the West Area.
- e. Continue construction activities on the portion of the Piramal Glass property located west of the Lee Mechanical office building.
- f. Continue constructing the eastern buttressing slope between Northing Coordinates N737900 and N738400.
- g. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- h. Complete air monitoring activities as described in the Removal Action Work Plan.
- i. Continue efforts to contact and meet with the landowners identified as potentially being affected by the removal action activities so that access agreements can be obtained.

**4. Changes in Personnel:**

- a. None.

**5. Issues or Problems Arising This Period:**

- a. None.

**6. Resolution of Issues or Problems Arising This Period:**

- a. None.

**End of Monthly Progress Report**

March 20, 2012

Allison Olds  
Barr Engineering Company  
1001 Diamond Ridge  
Suite 1100  
Jefferson City, MO 65109  
TEL: (573) 638-5007  
FAX: (573) 638-5001



**RE: National MTS-25/86-0003**

**WorkOrder: 12030700**

Dear Allison Olds:

TEKLAB, INC received 1 sample on 3/15/2012 10:19:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Michael L. Austin  
Project Manager  
(618)344-1004 ex 16  
MAustin@teklabinc.com



## Report Contents

<http://www.teklabinc.com/>

**Client:** Barr Engineering Company

**Work Order:** 12030700

**Client Project:** National MTS-25/86-0003

**Report Date:** 20-Mar-12

**This reporting package includes the following:**

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**Client:** Barr Engineering Company

**Work Order:** 12030700

**Client Project:** National MTS-25/86-0003

**Report Date:** 20-Mar-12

**Abbr Definition**

- CCV** Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
- DF** Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
- DNI** Did not ignite
- DUP** Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
- ICV** Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
- IDPH** IL Dept. of Public Health
- LCS** Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
- LCSD** Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MB** Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
- MDL** Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
- MS** Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
- MSD** Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MW** Molecular weight
- ND** Not Detected at the Reporting Limit
- NELAP** NELAP Accredited
- PQL** Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
- RL** The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
- RPD** Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
- SPK** The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
- Surr** Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
- TNTC** Too numerous to count ( > 200 CFU )

**Qualifiers**

- |  |  |
|--|--|
| # - Unknown hydrocarbon                        | B - Analyte detected in associated Method Blank        |
| E - Value above quantitation range             | H - Holding times exceeded                             |
| J - Analyte detected below quantitation limits | M - Manual Integration used to determine area response |
| ND - Not Detected at the Reporting Limit       | R - RPD outside accepted recovery limits               |
| S - Spike Recovery outside recovery limits     | X - Value exceeds Maximum Contaminant Level            |



## Case Narrative

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

Cooler Receipt Temp: 1.2 °C

### Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	kmcclain@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2013	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2013	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2012	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2012	Springfield
Arkansas	ADEQ	88-0966		3/14/2012	Collinsville
Illinois	IDPH	17584		4/30/2012	Collinsville
Kentucky	UST	0073		5/26/2012	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2012	Collinsville



## Laboratory Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

Lab ID: 12030700-001

Client Sample ID: Nat-East

Matrix: AQUEOUS

Collection Date: 03/14/2012 11:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 600 375.2 REV 2.0 1993 (TOTAL)</b>								
Sulfate	NELAP	150		240	mg/L	2	03/17/2012 0:19	R161263
<b>STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED</b>								
Lab pH	NELAP	1.00		8.22		1	03/15/2012 15:26	R161174
<b>STANDARD METHODS 18TH ED. 2340 C</b>								
Hardness, as ( CaCO <sub>3</sub> )	NELAP	5		520	mg/L	1	03/16/2012 11:40	R161211
<b>STANDARD METHODS 18TH ED. 2540 C (TOTAL)</b>								
Total Dissolved Solids	NELAP	20		724	mg/L	1	03/16/2012 10:28	R161252
<b>STANDARD METHODS 18TH ED. 2540 D</b>								
Total Suspended Solids	NELAP	6		7	mg/L	1	03/16/2012 12:42	R161202
<b>STANDARD METHODS 18TH ED. 2540 F</b>								
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	03/15/2012 12:46	R161167
<b>STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON</b>								
Total Organic Carbon (TOC)	NELAP	1.0		< 1.0	mg/L	1	03/16/2012 5:02	R161208
<b>EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)</b>								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/19/2012 13:09	76113
Zinc	NELAP	10.0		77.6	µg/L	1	03/19/2012 13:09	76113
<b>EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)</b>								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/16/2012 16:24	76109
Zinc	NELAP	10.0		104	µg/L	1	03/16/2012 16:24	76109
<b>STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)</b>								
Lead	NELAP	4.00	X	15.1	µg/L	2	03/16/2012 12:22	76115
<b>STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA</b>								
Lead	NELAP	10.0	X	41.3	µg/L	5	03/19/2012 14:43	76100





## Sample Summary

<http://www.teklabinc.com/>

**Client:** Barr Engineering Company

**Work Order:** 12030700

**Client Project:** National MTS-25/86-0003

**Report Date:** 20-Mar-12

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
12030700-001	Nat-East	Aqueous	5	03/14/2012 11:00



## Dates Report

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

Sample ID	Client Sample ID	Collection Date	Received Date	
	Test Name		Prep Date/Time	Analysis Date/Time
12030700-001A	Nat-East	03/14/2012 11:00	3/15/2012 10:19:00 AM	
	Standard Methods 18th Ed. 2540 F			03/15/2012 12:46
12030700-001B	Nat-East	03/14/2012 11:00	3/15/2012 10:19:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)			03/17/2012 0:19
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed			03/15/2012 15:26
	Standard Methods 18th Ed. 2340 C			03/16/2012 11:40
	Standard Methods 18th Ed. 2540 C (Total)			03/16/2012 10:28
	Standard Methods 18th Ed. 2540 D			03/16/2012 12:42
12030700-001C	Nat-East	03/14/2012 11:00	3/15/2012 10:19:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/16/2012 16:24
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFAA			03/19/2012 14:43
12030700-001D	Nat-East	03/14/2012 11:00	3/15/2012 10:19:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			03/19/2012 13:09
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFAA (Dissolved)			03/16/2012 12:22
12030700-001E	Nat-East	03/14/2012 11:00	3/15/2012 10:19:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			03/16/2012 5:02



## Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

### EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R161263 SampType: MBLK Units mg/L

SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	75		< 75						03/16/2012

Batch R161263 SampType: LCS Units mg/L

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	75		150	150	0	100.1	90	110	03/16/2012

Batch R161263 SampType: MS Units mg/L

SampID: 12030700-001B MS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	150		416	0	239.6	0	85	115	03/17/2012

Batch R161263 SampType: MSD Units mg/L

SampID: 12030700-001B MSD

RPD Limit 10

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	150		427	0	239.6	0	416.2	2.67	03/17/2012

### STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED

Batch R161174 SampType: LCS Units

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		6.97	7.00	0	99.6	99.1	100.8	03/15/2012

Batch R161174 SampType: DUP Units

SampID: 12030700-001BDUP

RPD Limit 10

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		8.24				8.220	0.24	03/15/2012

### STANDARD METHODS 18TH ED. 2340 C

Batch R161211 SampType: MBLK Units mg/L

SampID: MB-R161211

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as ( CaCO <sub>3</sub> )	5		< 5						03/16/2012

Batch R161211 SampType: LCS Units mg/L

SampID: LCS-R161211

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as ( CaCO <sub>3</sub> )	5		1020	1000	0	102.0	90	110	03/16/2012



## Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company  
Client Project: National MTS-25/86-0003

Work Order: 12030700  
Report Date: 20-Mar-12

### STANDARD METHODS 18TH ED. 2340 C

Batch R161211 SampType: MS		Units mg/L								Date Analyzed
SampID: 12030700-001BMS										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Hardness, as ( CaCO <sub>3</sub> )	5		920	400	520.0	100.0	85	115	03/16/2012	

Batch R161211 SampType: MSD		Units mg/L								RPD Limit 10	Date Analyzed
SampID: 12030700-001BMSD											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD			
Hardness, as ( CaCO <sub>3</sub> )	5		940	400	520.0	105.0	920.0	2.15	03/16/2012		

### STANDARD METHODS 18TH ED. 2540 C (TOTAL)

Batch R161252 SampType: MBLK		Units mg/L								Date Analyzed
SampID: MBLK										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Dissolved Solids	20		< 20						03/16/2012	
Total Dissolved Solids	20		< 20						03/16/2012	
Total Dissolved Solids	20		< 20						03/16/2012	

Batch R161252 SampType: LCS		Units mg/L								Date Analyzed
SampID: LCS										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Dissolved Solids	20		966	1000	0	96.6	90	110	03/16/2012	

Batch R161252 SampType: LCSQC		Units mg/L								Date Analyzed
SampID: LCSQC										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Dissolved Solids	20		982	1000	0	98.2	90	110	03/16/2012	
Total Dissolved Solids	20		996	1000	0	99.6	90	110	03/16/2012	

Batch R161252 SampType: MS		Units mg/L								Date Analyzed
SampID: 12030700-001B MS										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Dissolved Solids	20		1230	500	724.0	101.6	85	115	03/16/2012	

Batch R161252 SampType: MSD		Units mg/L								RPD Limit 15	Date Analyzed
SampID: 12030700-001B MSD											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD			
Total Dissolved Solids	20		1280	500	724.0	111.6	1232	3.98	03/16/2012		

### STANDARD METHODS 18TH ED. 2540 D

Batch R161202 SampType: MBLK		Units mg/L								Date Analyzed
SampID: MBLK										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Suspended Solids	6		< 6						03/16/2012	

Client: Barr Engineering Company  
 Client Project: National MTS-25/86-0003

Work Order: 12030700  
 Report Date: 20-Mar-12

## STANDARD METHODS 18TH ED. 2540 D

Batch R161202 SampType: LCS Units mg/L  
 SampleID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		101	100	0	101.0	85	115	03/16/2012
Total Suspended Solids	6		101	100	0	101.0	85	115	03/16/2012
Total Suspended Solids	6		94	100	0	94.0	85	115	03/16/2012
Total Suspended Solids	6		94	100	0	94.0	85	115	03/16/2012

Batch R161202 SampType: DUP Units mg/L  
 SampleID: 12030700-001B DUP

RPD Limit 15

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Suspended Solids	6		< 6				7.000	0.00	03/16/2012

## STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON

Batch R161208 SampType: MBLK Units mg/L  
 SampleID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	1.0		< 1.0						03/15/2012

Batch R161208 SampType: LCS Units mg/L  
 SampleID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	5.0		50.2	48.2	0	104.1	89.6	109.5	03/15/2012

## EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 76113 SampType: MBLK Units µg/L  
 SampleID: MB-76113

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	03/16/2012
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	03/19/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100	03/16/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100	03/19/2012

Batch 76113 SampType: LCS Units µg/L  
 SampleID: LCS-76113

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		45.5	50.0	0	91.0	85	115	03/19/2012
Cadmium	2.00		45.1	50.0	0	90.2	85	115	03/16/2012
Zinc	10.0		491	500	0	98.3	85	115	03/19/2012
Zinc	10.0		464	500	0	92.8	85	115	03/16/2012

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

**EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)**

Batch 76113 SampType: MS		Units µg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Cadmium		2.00		45.6	50.0	0	91.2	75	125	03/19/2012
Zinc		10.0		576	500	77.6	99.7	75	125	03/19/2012

Batch 76113 SampType: MSD		Units µg/L								RPD Limit 20	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Cadmium		2.00		44.5	50.0	0	89.0	45.6	2.44		03/19/2012
Zinc		10.0		568	500	77.6	98.2	575.9	1.31		03/19/2012

**EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)**

Batch 76109 SampType: MBLK		Units µg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Cadmium		2.00		< 2.00	2.00	0	0	-100	100	03/16/2012
Zinc		10.0		< 10.0	10.0	0	0	-100	100	03/16/2012

Batch 76109 SampType: LCS		Units µg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Cadmium		2.00		50.5	50.0	0	101.0	85	115	03/16/2012
Zinc		10.0		540	500	0	108.0	85	115	03/16/2012

Batch 76109 SampType: MS		Units µg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Cadmium		2.00		51.1	50.0	0.5	101.2	75	125	03/16/2012
Zinc		10.0		649	500	103.5	109.1	75	125	03/16/2012

Batch 76109 SampType: MSD		Units µg/L								RPD Limit 20	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Cadmium		2.00		51.3	50.0	0.5	101.6	51.1	0.39		03/16/2012
Zinc		10.0		642	500	103.5	107.7	649.1	1.12		03/16/2012

**STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)**

Batch 76115 SampType: MS		Units µg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		4.00		30.7	15.0	15.1472	103.6	70	130	03/16/2012



## Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

### STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 76115		SampType: MSD		Units µg/L				RPD Limit 20		Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lead		4.00		31.2	15.0	15.1472	106.9	30.693	1.57	03/16/2012

### STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA

Batch 76100		SampType: MBLK		Units µg/L				Low Limit		High Limit	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC				
Lead		2.00		< 2.00	2.00	0	0	-100		100	03/19/2012

Batch 76100		SampType: LCS		Units µg/L				Low Limit		High Limit	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC				
Lead		2.00		15.4	15.0	0	102.5	85		115	03/19/2012

Batch 76100		SampType: MS		Units µg/L				Low Limit		High Limit	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC				
Lead		10.0		56.6	15.0	41.272	102.3	70		130	03/19/2012

Batch 76100		SampType: MSD		Units µg/L				RPD Limit 20		Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lead		10.0		52.6	15.0	41.272	75.3	56.618	7.41	03/19/2012



## Receiving Check List

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12030700

Client Project: National MTS-25/86-0003

Report Date: 20-Mar-12

Carrier: Ricky Schmidt

Received By: SRH

Completed by:

On:

15-Mar-12

Timothy W. Mathis

Reviewed by:

On:

15-Mar-12

Michael L. Austin

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C 1.2

Type of thermal preservation?

None ☐

Ice ☒

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☐

NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water - at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

Any No responses must be detailed below or on the COC.





# Teklab Chain of Custody

Pg. 1 of 1

Workorder 12030700

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax: (618)344-1005

Barr Engineering Co.

Are the samples chilled? ☒ Yes ☐ No with: ☒ Ice ☐ Blue icePreserved in ☒ Lab ☐ Field80  
TM 3-15-12

1001 Diamond Ridge, Suite 1100

Cooler Temp 12 Sampler Chris Schulte

Jefferson City

MO

65109

Comments

Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com  
Matrix is surface water.

Metals = Cd, Pb, Zn

Custody Seal intact upon pick up

Contact Allison Olds

eMail aolds@barr.com

Phone 573-638-5007 Requested Due Date Standard

Billing/PO Per contract with Doe Run

Lab Use	Sample ID	Sample Date/Time	Preservative	Matrix	pH	TSS	Total Dissolved Solids	Sulfate	Settleable Solids	T.O.C	Total Metals	Dissolved Metals	Hardness			
	Nat-East	3/14/12 / 11:00	Unpres	S Aqueous	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres	Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Teklab Inc.  
Courier Pick Up

Relinquished By*	Date/Time	Received By	Date/Time
<u>Chris Schulte / Ben</u>	<u>3/14/12 / 14:30</u>	<u>R. Schmidt</u>	<u>3/15/12 / 08:46</u>
<u>R. Schmidt</u>	<u>3/15/12 / 10:19</u>	<u>Stephanie Haines</u>	<u>3/15/12 / 10:19</u>

\* The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.